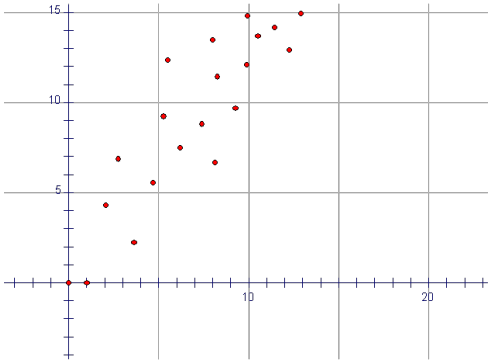


2-5 Modeling Real World Data

Scatter plot--set of data graphed as ordered pairs

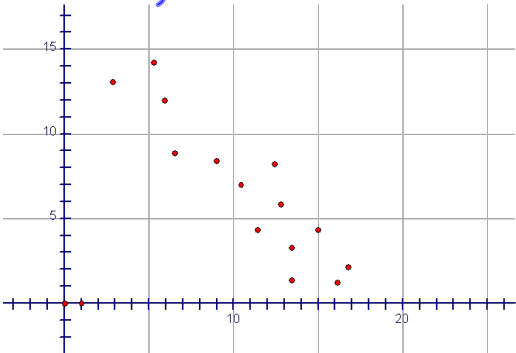
Positive Correlation



Oct 4-11:30 AM

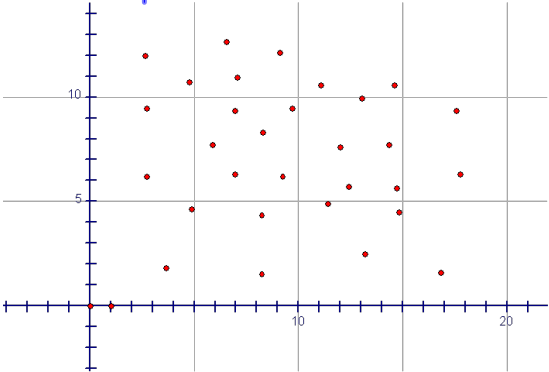
Oct 4-11:32 AM

Negative Correlation



Oct 4-11:32 AM

No Correlation



Oct 4-11:32 AM

Line of Best Fit--line that closely approximates the data

- an equation that allows you to make a prediction
- extrapolation--make a prediction outside of data
- interpolation--make a prediction inside of data
- outlier *— doesn't fit w/ other data*

Example 1: The keyboarding speed of students improves the longer they practice. The table below reflects the number of words per minute students can type, given their experience in weeks.

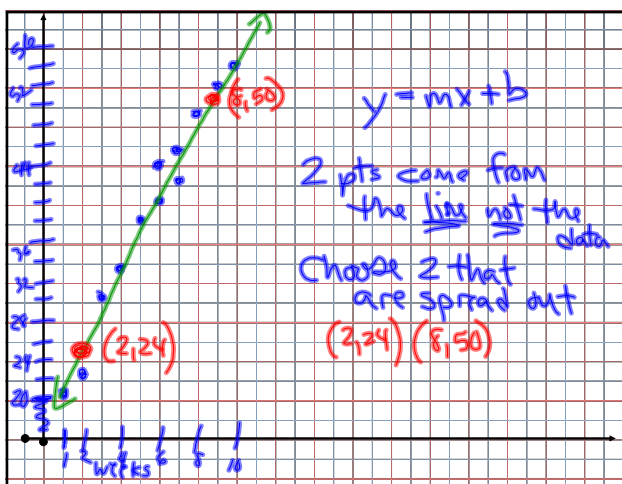
Experience (weeks)	Speed (wpm)
4	33
7	45
8	49
1	20
6	40
3	30
5	38
2	22
9	52
6	44
7	42
10	55

Plot the data.
Sketch the line of best fit.
Find the equation of the line.

Use the line to make a prediction for the number of words per minute at 14 weeks.

Oct 4-11:34 AM

Sep 27-9:41 AM



$$(2, 24) (8, 50)$$

$$m = \frac{50 - 24}{8 - 2} = \frac{26}{6} = \frac{13}{3}$$

$$m = \frac{13}{3} = 4\frac{1}{3}$$

$$y = \frac{13}{3}x + b$$

$$24 = \frac{13}{3}(2) + b$$

$$\frac{72 - 26}{3} = \frac{24}{3} = \frac{26}{3} + b$$

$$\frac{46}{3} = b$$

$$15\frac{1}{3} = b$$

$$y = 4\frac{1}{3}x + 15\frac{1}{3}$$

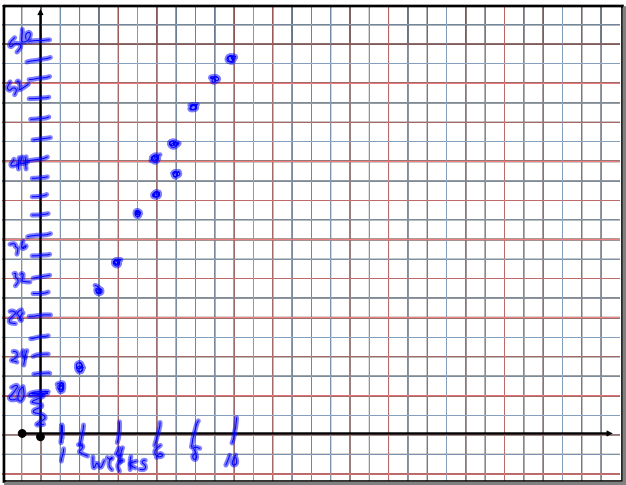
$$y = 4\frac{1}{3}(14) + 15\frac{1}{3}$$

$$= \frac{13}{3}(14) + \frac{46}{3}$$

$$y = 76 \text{ words per minute}$$

Sep 27-9:44 AM

Sep 30-12:15 PM



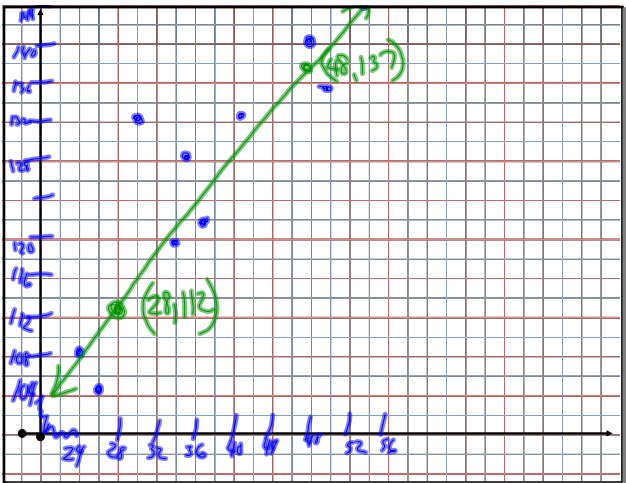
Sep 27-9:44 AM

Example 2: The table below shows the systolic blood pressure for certain patients of a given age.

Age	Systolic Blood Pressure
35	128
24	108
48	140
50	135
34	119
55	146
30	132
26	104
41	132
37	121

Plot the data.
Sketch the line of best fit.
Find the equation of the line. $y = 1.25x + 77$
Use the line to make a prediction for the systolic blood pressure for a 38 year old. 124.5

Sep 27-9:43 AM



Sep 27-9:44 AM

$(28, 112)$
 $(48, 137)$

$$m = \frac{137 - 112}{48 - 28} = \frac{25}{20} = \frac{5}{4} = 1.25$$

$y = 1.25x + b$
 $112 = 1.25(28) + b$
 $112 = 35 + b$
 $77 = b$

$y = 1.25x + 77$

Sep 30-12:30 PM

HW
p83-85 #s 1, 4-6, 8

Oct 4-11:43 AM